

SUPERO[®]

SUPER X5DPA-G
SUPER X5DPA-GG

USER'S MANUAL

Revision 1.0b

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Preface

About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPER X5DPA-G/X5DPA-GG mainboard. The SUPER X5DPA-G/X5DPA-GG supports single or dual Intel® 604 and 603-pin Xeon™ processors at up to 3.06 GHz at a 533/400 MHz front side bus. Please refer to the support section of our web site (<http://www.supermicro.com/TechSupport.htm>) for a complete listing of supported processors. This product is intended to be professionally installed.

Manual Organization

Chapter 1 begins with a checklist of what should be included in your mainboard box, describes the features, specifications and performance of the motherboard and provides detailed information about the chipset.

Chapter 2 begins with instructions on handling static-sensitive devices. Read this chapter when you want to install the processor and DIMM memory modules and when mounting the mainboard in the chassis. Also refer to this chapter to connect the floppy and hard disk drives, SCSI drives, the IDE interfaces, the parallel and serial ports, the keyboard and mouse, the power supply and various control panel buttons and indicators.

If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for the video, the memory and the setup configuration stored in CMOS. For quick reference, a general FAQ [Frequently Asked Questions] section is provided. Instructions are also included for contacting technical support. In addition, you can visit our web site (at www.supermicro.com/techsupport.htm) for more detailed information.

Chapter 4 includes an introduction to BIOS and provides detailed information on running the CMOS Setup utility.

Appendix A gives information on BIOS POST messages.

Appendix B provides BIOS POST codes.

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Chapter 1

Introduction

1-1 Overview

Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance.

Please check that the following items have been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

One (1) Supermicro Mainboard

One (1) ribbon cable for IDE devices

One (1) floppy ribbon cable

One (1) USB cable

One (1) COM Port Cable with Bracket

One (1) I/O backpanel shield

One (1) Supermicro CD or diskettes containing drivers and utilities

One (1) User's/BIOS Manual

Two (2) CPU/Heatsink Plates (SKT-120-P) and two (2) heatsink retention clips (SKT-095-604 E)

Contacting Supermicro

Headquarters

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Technical Support:
Email: support@supermicro.com.tw
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NOTES

Figure 1-1. SUPER X5DPA-G Image

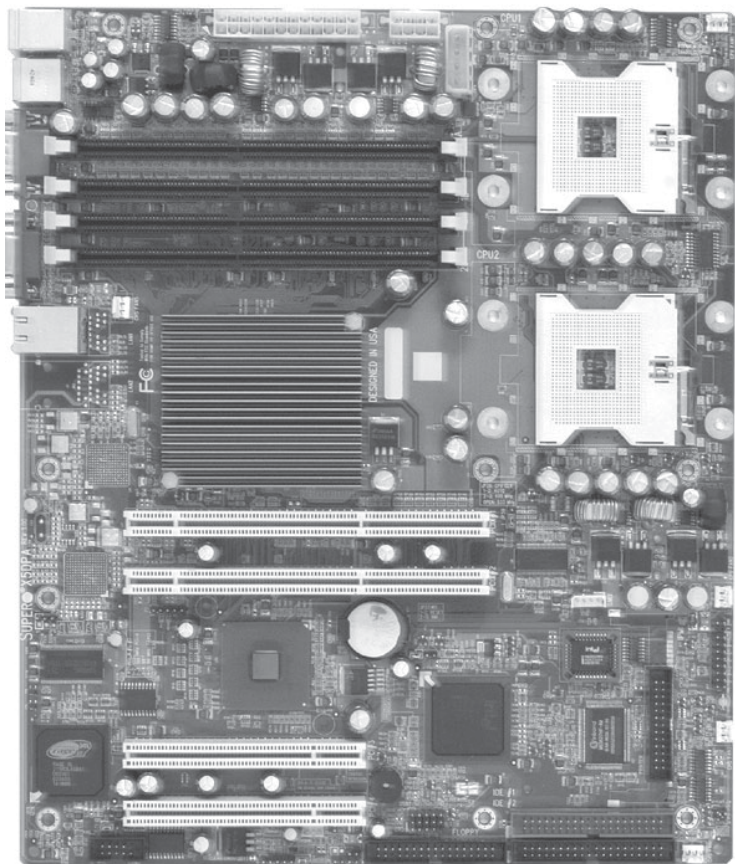


Figure 1-2. SUPER X5DPA-GG Image

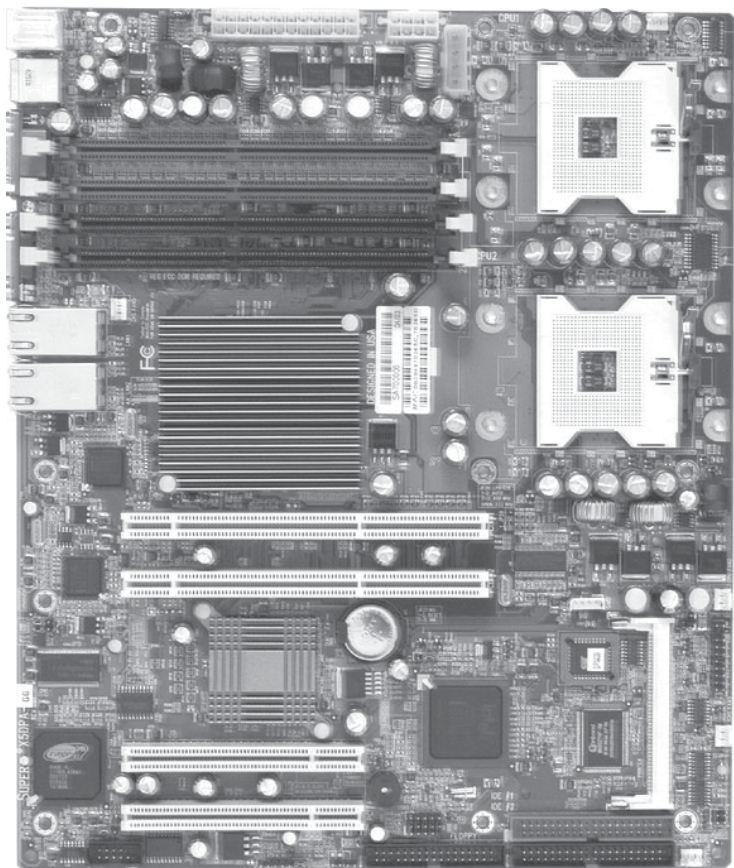
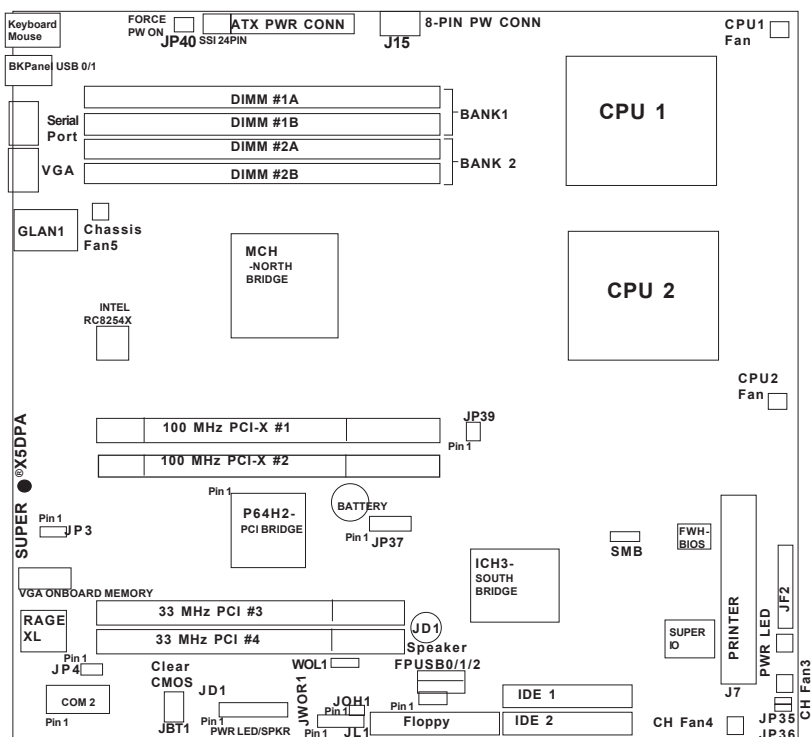


Figure 1-3. SUPER X5DPA-G Layout*
(not drawn to scale)



Notes:

1. The CPU sockets are designed for the 604-Pin Xeon Processors; however, the 603-Pin CPUs are also supported. When one CPU is used, please install it in CPU Socket #1.
2. DIMM memory modules have to be used in pairs. When one pair of DIMMs are used, please install them in the Bank #1.

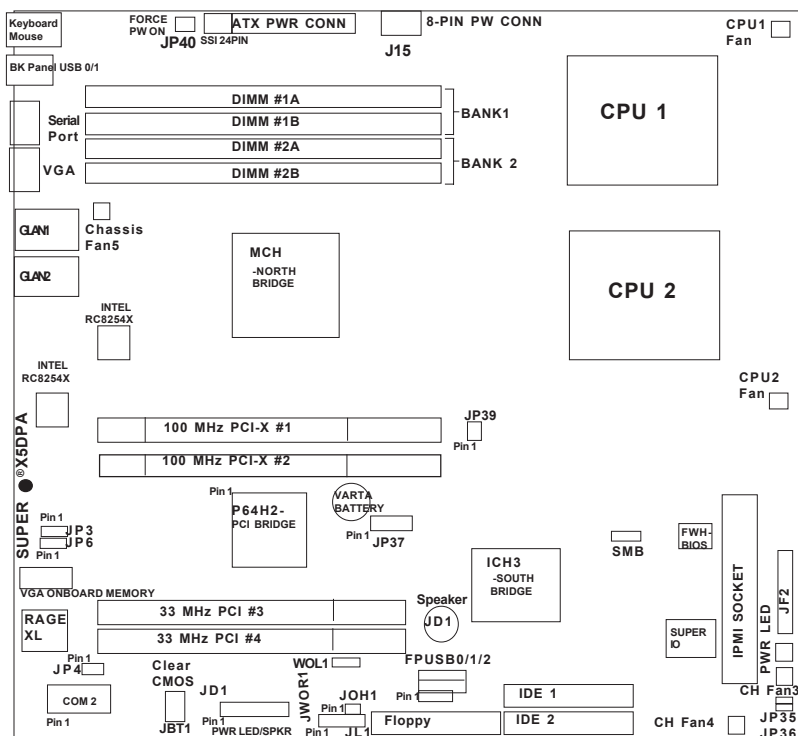
X5DPA-G Quick Reference

<u>Jumper</u>	<u>Description</u>	<u>Default Setting</u>
JBT1	CMOS Clear	See Jumper Section
JD1	PWR LED/Speaker Header	Pins 6-7 (Onboard Speaker)
JP3	GLAN1 Enable/Disable	Pins 1-2 (Enabled)
JP4	VGA Enable/Disable	Pins 1-2 (Enabled)
JP37	Watch Dog (Reset/NMI)	Pins 2-3 NMI(*Note)
JP39	CPU Clock	Pins 1-2 (Auto)
JP40	Force Power On	Open (Disabled)

<u>Connector</u>	<u>Description</u>
ATX PWR CONN	Primary ATX Power Connector
DIMM#1A-DIMM#2B	Memory (RAM) Slots
CPU/CHASSIS FANS	CPU/Chassis Fan Headers
LAN1	GLAN1(Gigabit Ethernet Port 1)
J2/J3	IDE#1(J2), IDE#2(J3) HDD Connectors
J4	VGA Connector
J7	Printer Connector
JP7	Floppy Disk Drive Connector
J8, J26	COM1(SerialPort1-J8),COM2(SerialPort2-J26)
J10,J11	Back Panel USB 0/1Ports (J10:USB 0, J11: USB 1)
JD2, J27, USB5	Front Panel USB Ports (JD2: USB2/3, J27:USB4), USB5
J15	Secondary ATX Power (8-Pin) Connector
JF2	Front Control Panel Connector
JL1	Chassis Intrusion Header
JOH1	Overheat LED
J28	PS/2 Keyboard & PS/2 Mouse
JP35	Keylock Switch Connector
JP36	Alarm Reset Switch
JWOR1	Wake-on-Ring Header
WOL1	Wake-on-LAN Header

(*Note: NMI: Non Maskable Interrupt)

Figure 1-3. SUPER X5DPA-GG Layout*
(not drawn to scale)



Notes:

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2. DIMM memory modules have to be used in pairs. When one pair of DIMMs are used, please install them in the Bank #1.

X5DPA-GG Quick Reference

<u>Jumper</u>	<u>Description</u>	<u>Default Setting</u>
JBT1	CMOS Clear	See Jumper Section
JD1	PWR LED/Speaker Header	Pins 6-7 (Onboard Speaker)
JP3	GLAN1 Enable/Disable	Pins 1-2 (Enabled)
JP6	GLAN2 Enable/Disable	Pins 1-2 (Enabled)
JP4	VGA Enable/Disable	Pins 1-2 (Enabled)
JP37	Watch Dog (Reset/NMI*)	Pins 2-3 NMI(*Note)
JP39	CPU Clock	Pins 1-2 (Auto)
JP40	Force Power ON	Open (Disabled)

<u>Connector</u>	<u>Description</u>
ATX PWR CONN	Primary ATX Power Connector
DIMM#1A-DIMM#2B	Memory (RAM) Slots
CPU/Chassis FAN	CPU/Chassis Fan Headers (5)
LAN1	GLAN1(Gigabit Ethernet Port 1)
LAN2	GLAN2(Gigabit Ethernet Port 2)
J2/J3	IDE#1(J2), IDE#2(J3) HDD Connectors
J4	VGA Connector
JP7	Floppy Disk Drive Connector
J8, J26	COM1(SerialPort1-J8),COM2(SerialPort2-J26)
J10,J11	Back Panel USB 0/1Ports (J10:USB 0, J11: USB 1)
JD2, J27,USB5	Front Panel USB Ports (JD2: USB2/3, J27:USB4),USB5
J15	Secondary ATX Power (8-Pin) Connector
J22	IPMI Socket
JF2	Front Control Panel Connector
JL1	Chassis Intrusion Header
JOH1	Overheat LED
J28	PS/2 Keyboard & PS/2 Mouse
JP35	Keylock Switch Connector
JP36	Alarm Reset Switch
JWOR1	Wake-on-Ring Header
WOL	Wake-on-LAN Header

(*Note: NMI: Non Maskable Interrupt)

Motherboard Features

CPU

- Single or dual Intel® 604-Pin Xeon™ processors of up to 3.06GHz at a 533/400 MHz front side (system) bus speed. (603-Pin Xeon supported)

Note: Please refer to the support section of our web site for a complete listing of supported processors (<http://www.supermicro.com/TechSupport.htm>).

Memory

- Four 184-pin DIMM sockets supporting up to 8 GB of registered ECC DDR-266/200 SDRAM

Note: Interleaved memory; requires memory modules to be installed in pairs. DDR-266 memory must be used with 533 MHz FSB speed processors. (*If DDR-266 memory is used with 400 MHz FSB speed processors, it will run at 200 MHz.)See Section 2-3 for details.

Chipset

- Intel E7501 chipset

Expansion Slots

X5DPA-GG/X5DPA-G

- Two 64-bit, 133/100/66 MHz PCI-X (3.3 V) (*only one slot is available for 133MHz bus PCI-X.)
- Two 32-bit, 33 MHz PCI

BIOS

- 4 Mb AMI Flash ROM
- APM 1.2, DMI 2.1, PCI 2.2, ACPI 1.0, Plug and Play (PnP), SMBIOS 2.3

PC Health Monitoring

- Onboard voltage monitors for CPU cores, 3.3V,+12V,-12V and 3.3V standby
- Fan status monitor with firmware/software on/off control
- CPU/chassis temperature monitors
- Environmental temperature monitor and control
- CPU fan auto-off in sleep mode
- CPU slow-down on temperature overheat
- CPU overheat LED header
- Power-up mode control for recovery from AC power loss
- Auto-switching voltage regulator for CPU core
- System overheat LED and control
- Chassis intrusion detection

- System resource alert

ACPI Features (optional)

- Microsoft OnNow
- Slow blinking LED for suspend state indicator
- Main switch override mechanism

Onboard I/O

- Integrated ATI Rage XL graphics controller
- Intel Gigabit LAN (Ethernet) 8254X controller (* two GLAN ports on X5DPA-GG, one GLAN port on X5DPA-G)
- 2 EIDE Ultra DMA/100 bus master interfaces
- 1 floppy port interface (up to 2.88 MB)
- 2 Fast UART 16550A compatible serial ports
- PS/2 mouse and PS/2 keyboard ports
- Up to 5 USB (Universal Serial Bus) ports
- Parallel port on X5DPA-G

Other

- Internal/external modem ring-on
- Wake-on-LAN (WOL)
- Console redirection
- IPMI (*X5DPA-GG only-optional)

CD/Diskette Utilities

- BIOS flash upgrade utility and device drivers

Dimensions

- ATX: 12" x 10" (304.8 x 254 mm)

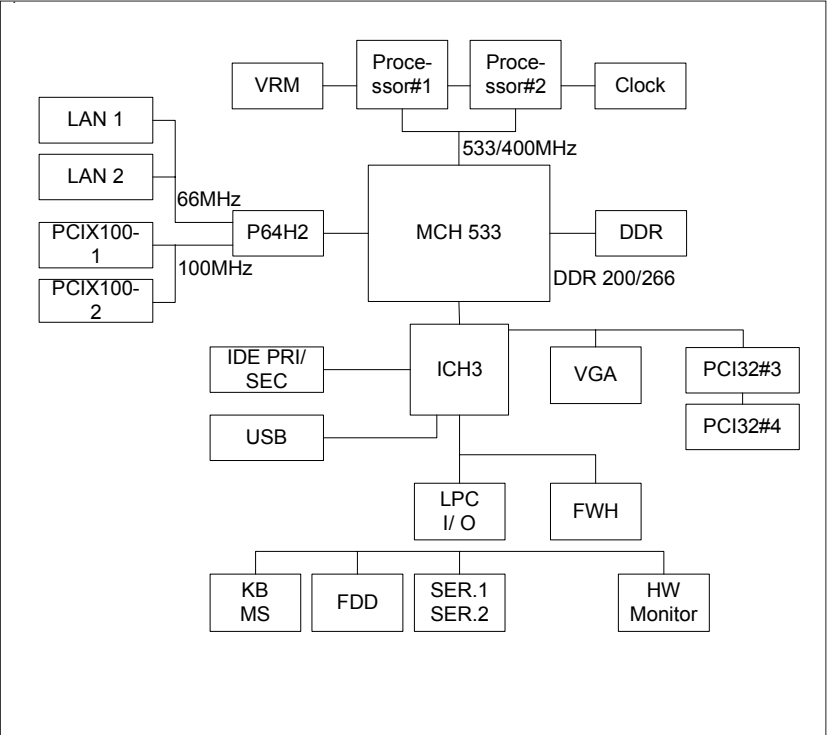


Figure 1-5. X5DPA: Block Diagram

Note: This is a general block diagram. Please see the previous Motherboard Features pages for details on the features of each motherboard.

1-2 Chipset Overview

The Intel E7501 chipset is a high-performance chipset with a performance and feature-set designed for mid-range, dual processor servers. The E7501 chipset consists of four major components: the Memory Controller Hub (MCH), the I/O Controller Hub 3 (ICH3), the PCI-X 64-bit Hub 2.0 (P64H2) and the FW82801CA FIRMWARE Controller.

The MCH has four hub interfaces, one to communicate with the ICH3 and three for high-speed I/O communications. The MCH employs a 144-bit wide memory bus for a DDR-266 memory interface, which provides a total bandwidth of 3.2 GB/s. The ICH3 interface is a 266 MB/sec point-to-point connection using an 8-bit wide, 66 MHz base clock at a 4x data transfer rate. The P64H2 interface is a 1 GB/s point-to-point connection using a 16-bit wide, 66 MHz base clock at a 8x data transfer rate.

The ICH3 I/O Controller Hub provides various integrated functions, including a two-channel UDMA100 bus master IDE controller, USB host controllers, a System Management Bus controller and an AC'97 compliant interface.

The P64H2 PCI-X Hub provides a 16-bit connection to the MCH for high-performance I/O capability and two 64-bit PCI-X interfaces.

1-3 Special Features

ATI Graphics Controller

The X5DPA-G/X5DPA-GG has an integrated ATI video controller based on the Rage XL graphics chip. The Rage XL fully supports sideband addressing and AGP texturing. This onboard graphics package can provide a bandwidth of up to 512 MB/sec over a 32-bit graphics memory bus.

Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power-on state. See the Power Lost Control setting in the AMI BIOS Utility to change this setting.

1-4 PC Health Monitoring

This section describes the PC health monitoring features of the SUPER X5DPA-G/X5DPA-GG. All have an onboard System Hardware Monitor chip that supports PC health monitoring.

Onboard Voltage Monitors for the CPU Cores,+3.3V,+12V,-12V and +3.3V Standby

An onboard voltage monitor will scan these voltages continuously. Once a voltage becomes unstable, a warning is given or an error message is sent to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware/Software On/Off Control

The PC health monitor can check the RPM status of the cooling fans. The onboard 3-pin CPU and chassis fans are controlled by the power management functions.

Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. It can continue to monitor for overheat conditions even when the CPU is in sleep mode. Once it detects that the CPU temperature is too high, the Overheat buzzer and the LED will be automatically activated. The onboard chassis thermal circuitry can monitor the overall system temperature and alert users when the chassis temperature is too high.

CPU Fan Auto-Off in Sleep Mode

The CPU fan activates when the power is turned on. It continues to operate when the system enters Standby mode. When in sleep mode, the CPU will not run at full power, thereby generating less heat.

CPU Overheat LED and Control

This feature is available when the user enables the CPU overheat warning function in the BIOS. This allows the user to define an overheat temperature. When this temperature is exceeded, both the overheat buzzer and the warning LED are triggered.

System Resource Alert

This feature is available when used with Intel's LANDesk Client Manager (optional). LDCM is used to notify the user of certain system events. For example, if the system is running low on virtual memory and there is insufficient hard drive space for saving the data, you can be alerted of the potential problem.

Auto-Switching Voltage Regulator for the CPU Core

The auto-switching voltage regulator for the CPU core can support up to 20A current and auto-sense voltage IDs ranging from 1.4V to 3.5V. This will allow the regulator to run cooler and thus make the system more stable.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers. This also includes consumer devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with both Windows 2000 and Windows NT 5.0.

Microsoft OnNow

The OnNow design initiative is a comprehensive, system-wide approach to system and device power control. OnNow is a term for a PC that is always on but appears to be off and responds immediately to user or other requests.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will wake-up and the LED will automatically stop blinking and remain on.

Main Switch Override Mechanism

When an ATX power supply is used, the power button can function as a system suspend button to make the system enter a SoftOff state. The monitor will be suspended and the hard drive will spin down. Depressing the power button again will cause the whole system to wake-up. During the SoftOff state, the ATX power supply provides power to keep the required circuitry in the system alive. In case the system malfunctions and you want to turn off the power, just depress and hold the power button for 4 seconds. This option can be set in the "BIOS features" under the "Advanced Menu."

External Modem Ring-On

Wake-up events can be triggered by a device such as the external modem ringing when the system is in the SoftOff state. Note that external modem ring-on can only be used with an ATX 2.01 (or above) compliant power supply.

Wake-On-LAN (WOL)

Wake-On-LAN is defined as the ability of a management application to remotely power up a computer that is powered off. Remote PC setup, updates and asset tracking can occur after hours and on weekends so that daily LAN traffic is kept to a minimum and users are not interrupted. The motherboards have a 3-pin header (WOL) to connect to the 3-pin header on

a Network Interface Card (NIC) that has WOL capability. Wake-On-LAN must be enabled in BIOS. Note that Wake-On-Lan can only be used with an ATX 2.01 (or above) compliant power supply.

1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates.

The SUPER X5DPA-G/X5DPA-GG accommodates ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. You should use one that will supply at least 350W of power and includes the additional +12V, 8-pin power connector - an even higher wattage power supply is recommended for high-load configurations. Also your power supply must supply 1.5A for LAN1 and LAN2.

(*NOTES:

Auxiliary 12v power (J15) is necessary to support Intel Xeon CPUs. Failure to provide this extra power will result in the CPUs becoming unstable after only a few minutes of operation. See Section 2-5 for details on connecting the power supply cables.

It is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above. It must also be SSI compliant (info at <http://www.ssiforum.org/>). Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

1-7 Super I/O

The disk drive adapter functions of the Super I/O chip include a floppy disk drive controller that is compatible with industry standard 82077/765, a data separator, write pre-compensation circuitry, decode logic, data rate selection, a clock generator, drive interface control logic and interrupt and DMA logic. The wide range of functions integrated onto the Super I/O greatly reduces the number of components required for interfacing with floppy disk

drives. The Super I/O supports 360 K, 720 K, 1.2 M, 1.44 M or 2.88 M disk drives and data transfer rates of 250 Kb/s, 500 Kb/s or 1 Mb/s. It also provides two high-speed, 16550 compatible serial communication ports

(UARTs), one of which supports serial infrared communication. Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system.

Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O supports one PC-compatible printer port (SPP), Bi-directional Printer Port (BPP), Enhanced Parallel Port (EPP) or Extended Capabilities Port (ECP).

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through an SMI or SCI function pin. It also features auto power management to reduce power consumption.

The IRQs, DMAs and I/O space resources of the Super I/O can flexibly adjust to meet ISA PnP requirements, which support ACPI and APM (Advanced Power Management).

Chapter 2

Installation

2-1 Static-Sensitive Devices

Electric-Static-Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the anti-static bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.

Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

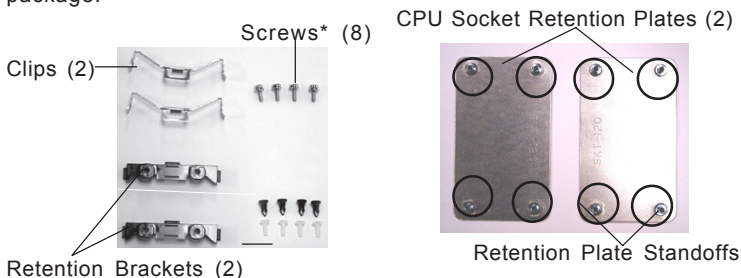
2-2 PGA Processor and Heatsink Installation



When handling the processor package, avoid placing direct pressure on the label area of the fan. Also, do not place the motherboard on a conductive surface, which can damage the BIOS battery and prevent the system from booting up.

IMPORTANT: Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket **before** you install the CPU heat sink.

1. Locate the following components, which are included in the shipping package.

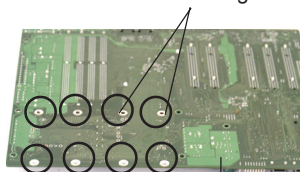


2. On the back side of the motherboard, locate the four CPU Retention Plate mounting holes. Also, Locate the four standoffs on each of the Retention Plates (shown on the pictures on the right).

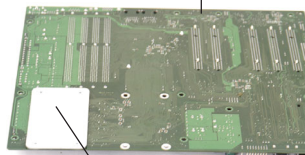
3. Make sure that the small sheet of Mylar is attached on the surface of the Retention Plate. Align the standoffs of the Retention Plate with the four mounting holes on the motherboard.

4. Place the Retention Plate on the back side of the motherboard and lock it into the proper position by inserting the standoffs on the Retention Plate into the mounting holes on the motherboard (with the Mylar sheet in between).

Retention Plate Mounting Holes



The Back Side of the Motherboard

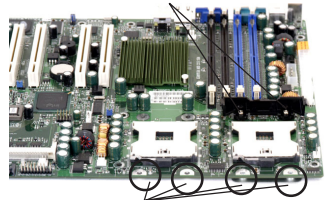


Place the Retention Plate on the back of the motherboard with its standoffs inside the mounting holes.

5. On the front side of the motherboard, place a Retention Bracket on top of the CPU socket. Make sure to

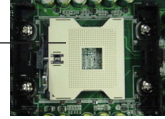
line up the mounting holes on the bracket against the mounting holes on the motherboard. Secure the Retention Bracket (on the front) and the Retention Plate (on the back) by putting screws through the mounting holes. Repeat this step for the second Retention Bracket.

Retention Plate with screws



Mounting Holes

CPU Socket



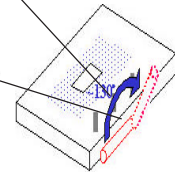
6. Repeat Steps 2-5 to install the additional CPU Retention Plate and the Retention Brackets.

7. Lift the lever on the CPU socket: lift the lever completely and fully (*120° to 135° for Xeon CPUs as shown on right), or you will damage the CPU socket when power is applied. (Install CPU1 first.)

Socket lever

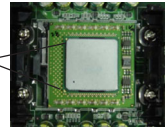


Open 120° to 135° for Xeon CPUs



8. Install the CPU in the socket. Make sure that pin 1 of the CPU is seated on pin 1 of the socket (both corners are marked). When using only one CPU, install it into CPU socket #1 (CPU socket #2 is automatically disabled if only one CPU is used).

Pin 1



9. Press the lever down until you hear it *click* into the locked position.

10. Apply the proper amount of thermal glue to the CPU die and place the heatsink and fan on top of the CPU.

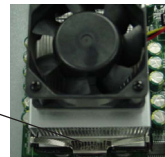
Fan

Heatsink



11. Secure the heatsink by locking the retention clips into their proper position.

Retention clip



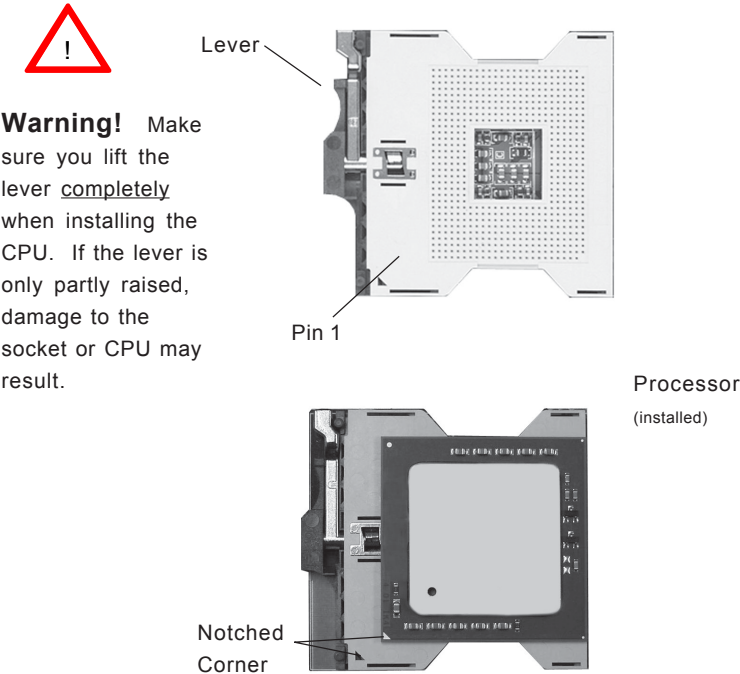
CPU fan wires

CPU fan connector



12. Connect the three wires of the CPU fan to the respective CPU fan connector.

Figure 2-1. PGA604 Socket: Empty and with Processor Installed



Mounting the Motherboard in the Chassis

All motherboards have standard mounting holes to fit different types of chassis. Make sure the location of all the mounting holes for both the motherboard and the chassis match. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. Make sure the metal standoffs click in or are screwed in tightly. Then use a screwdriver to secure the motherboard onto the motherboard tray.

2-3 Installing DIMMs

Note: Check the Supermicro web site for recommended memory modules:
http://www.supermicro.com/TECHSUPPORT/FAQs/Memory_vendors.htm

CAUTION

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage. Also note that the memory is interleaved to improve performance (see step 1).

DIMM Installation (See Figure 2-2)

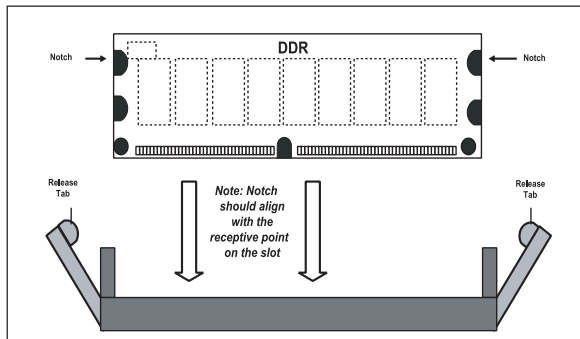
1. Insert the desired number of DIMMs into the memory slots, starting with Bank 1. The memory scheme is interleaved so you must install two modules at a time, beginning with Bank 1, then Bank 2.
2. Insert each DIMM module vertically into its slot. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly.
3. Gently press down on the DIMM module until it snaps into place in the slot. Repeat for all modules (see step 1 above).

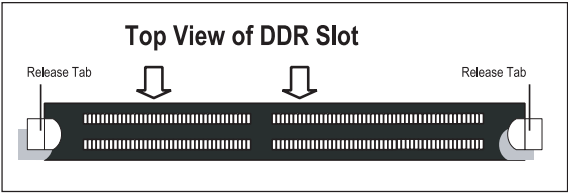
Memory Support

The X5DPA-G/X5DPA-GG only supports ECC registered DDR-266/200 MHz SDRAM memory. If you are using 533 MHz front side bus processor(s), you must use DDR-266 SDRAM. If you are using 400 MHz front side bus processor(s), you may use either DDR-266 or DDR-200 SDRAM.

Figure 2-2. Installing and Removing DIMMs

To Install:
 Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch at the bottom.



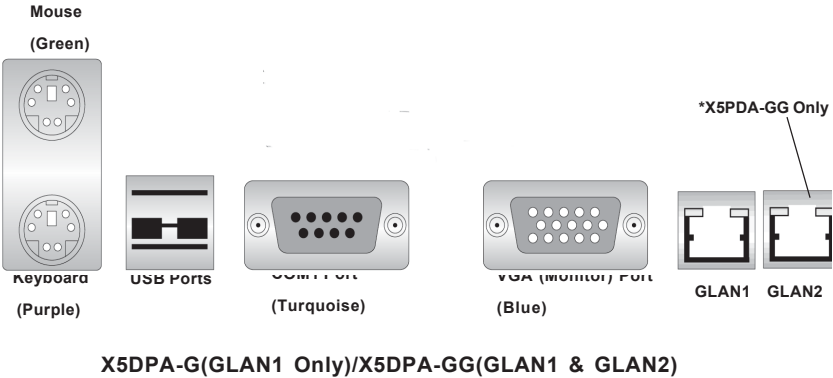


To Remove:
Use your thumbs to gently push near the edge of both ends of the module. This should release it from the slot.

2-4 I/O Ports/Control Panel Connectors

The I/O ports are color coded in conformance with the PC 99 specification. See Figure 2-3 below for the colors and locations of the various I/O ports.

Figure 2-3. I/O Port Locations and Definitions

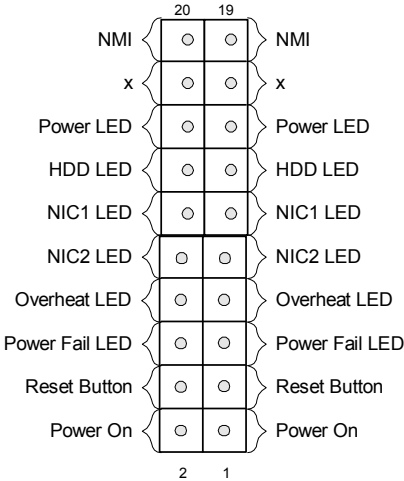


Notes: COM2 is a header located on the motherboard - see the motherboard layout pages in Chapter 1 for location.

Front Control Panel

JF2 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro server chassis. See Figure 2-4 for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.

Figure 2-4. JF2 Header Pins



2-5 Connecting Cables

ATX Power Connection

The X5DPA-G/X5DPA-GG power supply connector meets the SSI (Superset ATX) 24-pin specification, however it also supports a 20-pin power supply connector. Make sure that the orientation of the PS connector is correct. The X5DPA-G/X5DPA-GG has the 24-pin connector. See the tables on the right for pin definitions.

**ATX Power Supply 24-pin Connector
Pin Definitions**

Pin Number	Definition	Pin Number	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON#	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res(NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

PWR_SEC Connection

In addition to the Primary ATX power connector (above), the Secondary 12v 8-pin J15 connector must also be connected to your power supply. See the table on the right for pin definitions.

**8-Pin +12v Power Supply
Connector (J15)**

Pins	Definition
1 thru 4 5 thru 8	Ground +12v

Power LED

The Power LED connection is located on pins 15 and 16 of JF2. Refer to the table on the right for pin definitions.

**PWR_LED Pin Definitions
(JF2)**

Pin Number	Definition
15	Vcc
16	Control

NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF2. Refer to the table on the right for pin definitions.

**NMI Button Pin
Definitions (JF2)**

Pin Number	Definition
19	Control
20	Ground

HDD LED

The HDD LED (for IDE and SCSI Disk Drives) connection is located on pins 13 and 14 of JF2. Attach the IDE hard drive LED cable to these pins to display disk activity. Refer to the table on the right for pin definitions.

HDD LED Pin Definitions (JF2)

Pin Number	Definition
13	Vcc
14	HD Active

NIC1 LED

The NIC1 (Network Interface Controller) LED connection is located on pins 11 and 12 of JF2. Attach the NIC1 LED cable to display network activity. Refer to the table on the right for pin definitions.

NIC1 LED Pin Definitions (JF2)

Pin Number	Definition
11	Vcc
12	GND

NIC2 LED (*X5DPA-GG Only)

The NIC2 (Network Interface Controller) LED connection is located on pins 9 and 10 of JF2. Attach the NIC2 LED cable to display network activity. Refer to the table on the right for pin definitions.

NIC2 LED Pin Definitions (JF2)

Pin Number	Definition
9	Vcc
10	GND

Overheat LED (OH)

Connect an LED to the OH connection on pins 7 and 8 of JF2 to provide advanced warning of chassis overheating. Refer to the table on the right for pin definitions.

Overheat (OH) LED Pin Definitions (JF2)

Pin Number	Definition
7	Vcc
8	GND

Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF2. Refer to the table on the right for pin definitions.

Power Fail LED Pin Definitions (JF2)

Pin Number	Definition
5	Vcc
6	GND

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF2. Attach it to the hardware reset switch on the computer case. Refer to the table on the right for pin definitions.

**Reset Pin
Definitions
(JF2)**

Pin Number	Definition
3	Reset
4	Ground

Power Button

The Power Button connection is located on pins 1 and 2 of JF2. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (see the Power Button Mode setting in BIOS). To turn off the power when set to suspend mode, depress the button for at least 4 seconds. Refer to the table on the right for pin definitions.

**Power Button
Connector
Pin Definitions
(JF2)**

Pin Number	Definition
1	PW_ON
2	Ground

Chassis Intrusion

A Chassis Intrusion header is located at JL1. Attach the appropriate cable to inform you of a chassis intrusion.

Back Panel Universal Serial Bus (USB0/1)

Two Universal Serial Bus ports (J10, J11) are located beside the PS/2 keyboard/mouse ports. USB0 is the bottom connector and USB1 is the top connector. See the table on the right for pin definitions.

**Back Panel Universal Serial Bus Pin
Definitions (J10, J11)**

USB0		USB1	
Pin Number	Definition	Pin Number	Definition
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	Ground	4	Ground

Front Panel USB 0/1 & USB 2

Three Front Panel USB Headers (JD2, J22) can be used for front side USB access. These USB headers are located next to the Floppy Disk Connector. You will need a USB cable (not included) to use either connection. Refer to the tables on the right for pin definitions.

Front Panel Universal Serial Bus Pin Definitions
USB0/1(JD2) USB2(J22)

Pin Number	Definition	Pin Number	Definition
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	Ground	4	Ground
5	Key	5	N/A

Serial Ports

The COM1(J8) serial port is located next to the USB 0/1 ports. COM 2 is located at the corner near PCI-33 Slots. (see MB layouts in Chapter 1). See the table on the right for pin definitions. The COM2(J26) connector is a header on the motherboard (see pp. 1-6, 1-8 for location).

Serial Port Pin Definitions
(COM1, COM2)

Pin Number	Definition	Pin Number	Definition
1	CD	6	DSR
2	RD	7	RTS
3	TD	8	CTS
4	DTR	9	RI
5	Ground	10	NC

Note: Pin 10 is included on the header but not on the port.

Ethernet Ports GLAN1/2

(*GLAN 2 is for X5DPA-GG Only)

Two Ethernet ports (designated GLAN1 and GLAN2) are located beside the VGA port on the IO backplane. These ports accept RJ45 type cables.



Fan Headers

The X5DPA-G/X5DPA-GG has five CPU, chassis fan headers. Designations include CPU Fan1, CPU Fan2, Chassis Fan 3, Chassis Fan4, and Chassis Fan 5. See the table on the right for pin definitions.

Fan Header Pin Definitions

Pin Number	Definition
1	Ground (black)
2	+12V (red)
3	Tachometer

Caution: These fan headers are DC power.

Power LED/Speaker/NMI

On the JD1 header, pins 1-3 are for a Power LED, pins 4-7 are for the speaker. See the table on the right for speaker pin definitions. Note: The speaker connector pins are for use with an external speaker. If you wish to use the onboard speaker, you should close pins 6-7 with a jumper.

Speaker Connector Pin Definitions (JD1)

Pin Number	Function	Definition
4	+	Red wire, Speaker data
5	Key	No connection
6		Key
7		Speaker data

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and PS/2 mouse are located on J28 on the X5DPA-G/X5DPA-GG. See the table at right for pin definitions. (See Figure 2-3 for the locations of each.)

PS/2 Keyboard and Mouse Port Pin Definitions (J28)

Pin Number	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

Wake-On-LAN

The Wake-On-LAN header is designated WOL1. See the table on the right for pin definitions. You must enable the LAN Wake-Up setting in BIOS to use this feature. You must also have a LAN card with a Wake-on-LAN connector and cable.

Wake-On-LAN Pin Definitions (WOL1)

Pin Number	Definition
1	+5V Standby
2	Ground
3	Wake-up

Wake-On-Ring

The Wake-On-Ring header is designated JWOR1. This function allows your computer to receive and "wake-up" by an incoming call to the modem when in suspend state. See the table on the right for pin definitions. You must have a Wake-On-Ring card and cable to use this feature.

Wake-on-Ring Pin Definitions (JWOR1)

Pin Number	Definition
1	Ground
2	Wake-up

Keylock

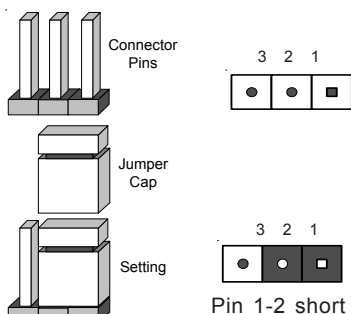
The keyboard lock connection is located on JP35. Utilizing this header allows you to inhibit any actions made on the keyboard, effectively "locking" it.

2-6 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



CMOS Clear

JBT1 is not literally a jumper but consists of two contact pads. To clear the contents of CMOS, short these pads together by touching them both with a metal conductor such as the head of a small screwdriver. For ATX power supplies, you must completely shut down the system and remove the AC power cord before clearing CMOS.

GLAN Enable/Disable

(*GLAN2 is for X5DPA-GG only)

Change the setting of JP3 to enable or disable the onboard GLAN1. Change the setting of JP6 to enable or disable the onboard GLAN2 (*X5DPA-GG only). See the table on the right for jumper settings. The default setting is enabled

**LAN
Enable/Disable
Jumper Settings
(JP3: LAN 1, JP6: LAN2)**

Jumper Position	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

VGA Enable/Disable

JP4 allows you to enable or disable the VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

**VGA Enable/Disable
Jumper Settings
(JP4)**

Jumper Position	Definition
1-2	Enabled
2-3	Disabled

Front Side Bus Speed

JP39 (see motherboard layout) is used to set the system (front side) bus speed for the processors. It is best to keep this jumper set to Auto. This jumper is used together with the CPU Clock setting in BIOS. See the table on the right for jumper settings.

**Front Side Bus Speed
Jumper Settings (JP39)**

Jumper Position	Definition
Pins 1-2	Auto
Pins 2-3	400 MHz
Open	533 MHz

Watch Dog Enable/Disable

JP37 allows you to enable or disable the functions of Watch Dog. See the table on the right for jumper settings. Close Pins 1-2 for reset. Close Pins 2-3 to activate the function of NMI (Non Maskable Interrupt).

**Watch Dog Enable/
Disable Jumper Settings
(JP37)**

Jumper Position	Definition
1-2	Reset
2-3	NMI

2-7 Onboard Indicators

GLAN1/GLAN2 LEDs (GLAN2 is for X5DPA-GG Only)

The Ethernet ports (located beside the VGA port) have two LEDs. See the table on the right for the functions associated with these LEDs. On each GLAN port, the yellow LED indicates activity while the other LED may be green, orange or off to indicate the speed of the connection.

GLAN Right LED Indicator

LED Color	Definition
Off	No Connection
Green	100 MHz
Orange	1 GHz